

I THE STATE OF THE



- Data Network management
 - Status of Network
 - Monitoring Network
 - Centralized Control
 - Required for both NIPRNET and SIPRNET

I WALLEY CONTRACTOR



- ISO Network Management model defines five (5) <u>functional areas</u> of network management
 - Fault Management
 - Configuration Management
 - Accounting Management
 - Performance Management
 - Security Management





- Fault Management is associated with the process of detection, isolation, notification, and correction of faults encountered in the network.
 - Fault Detection is accomplished when devices send SNMP trap messages, polling, and Syslog Messages.
 - A management system alerts administrators so proper corrective action can be taken.





 Configuration Management – deals with configuration aspects of network devices such as configuration file management, inventory management, and software management.

I WASHINGTON



- Accounting Management covers the usage information of network resources.
 - Used in businesses primarily for billing purposes.
 - Used in the Marine Corps primarily to view the usage of a particular link.
 - Three elements for an accounting system
 - Data collection
 - Data Processing
 - Reporting Tool





 Performance Management – is the practice of monitoring and measuring various aspects of performance tracking availability and reliability to ensure overall performance is maintained at acceptable levels.





 Security Management – is focused on access to network devices and security related tools ensuring resources are accessible only to authorized individuals.





- HP OPEN VIEW
- CISCO WORKS 2000
- WHATS UP GOLD



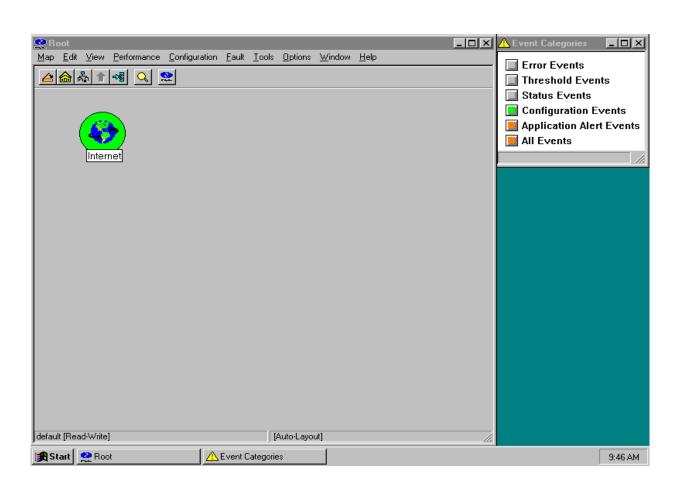


HP OPEN VIEW

- Is one of the authorized Marine Corps data Management Tool
- Manages any vendor that supports
 SNMP
- Automatically discover IP/IPX networks and monitor network devices.

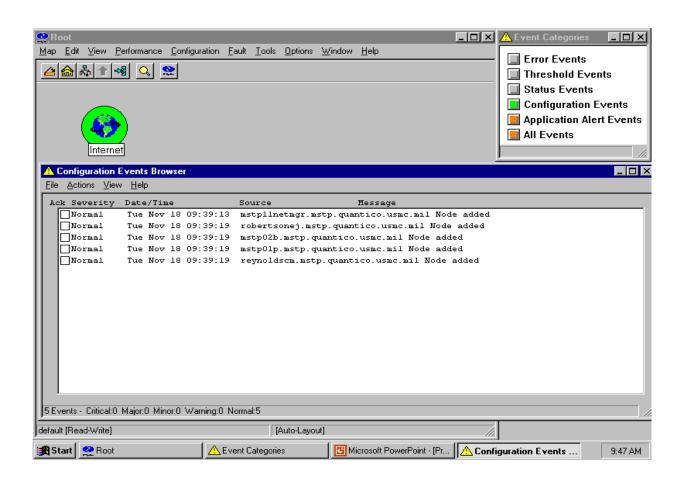






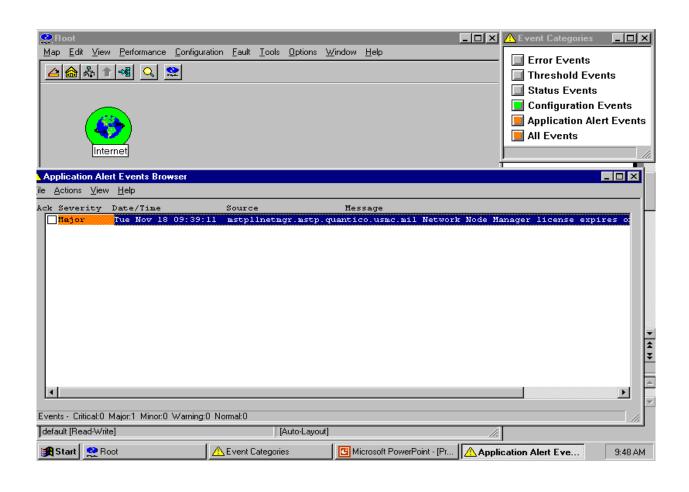








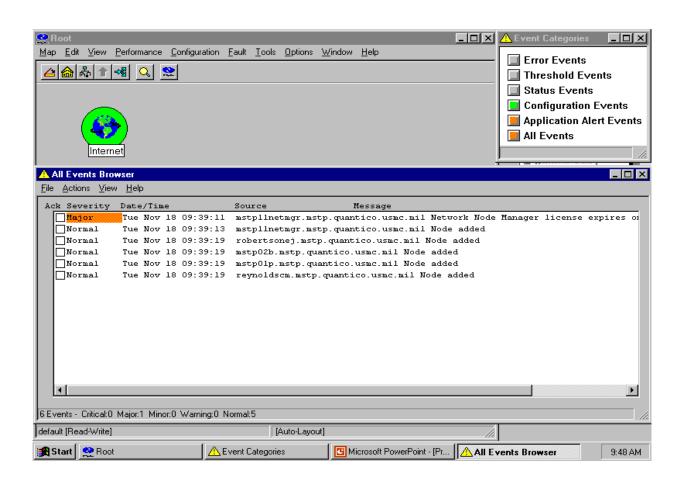






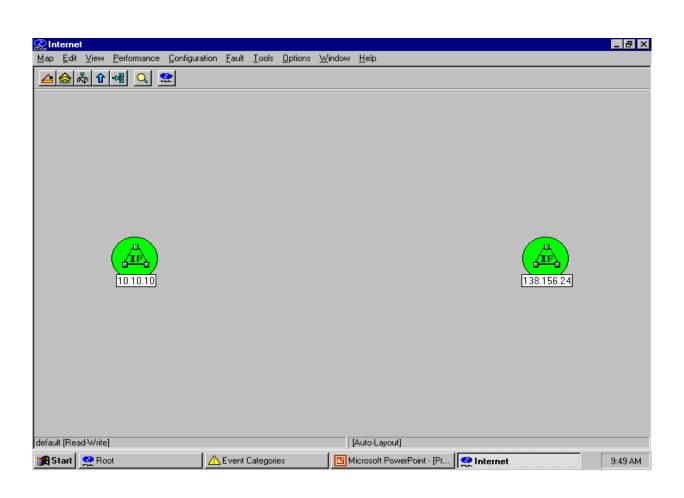






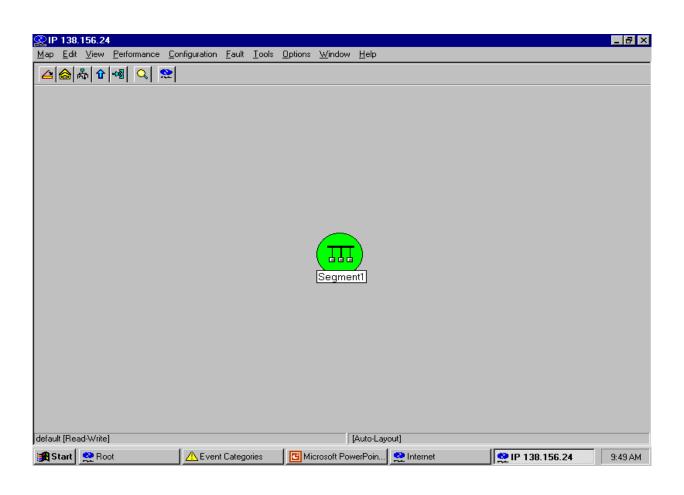






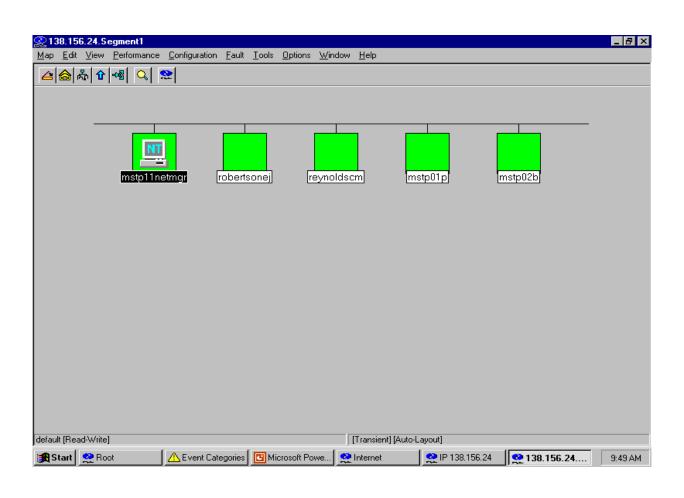






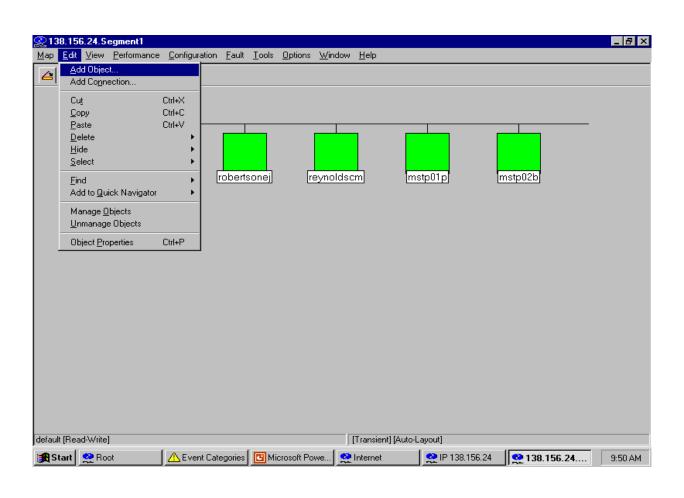






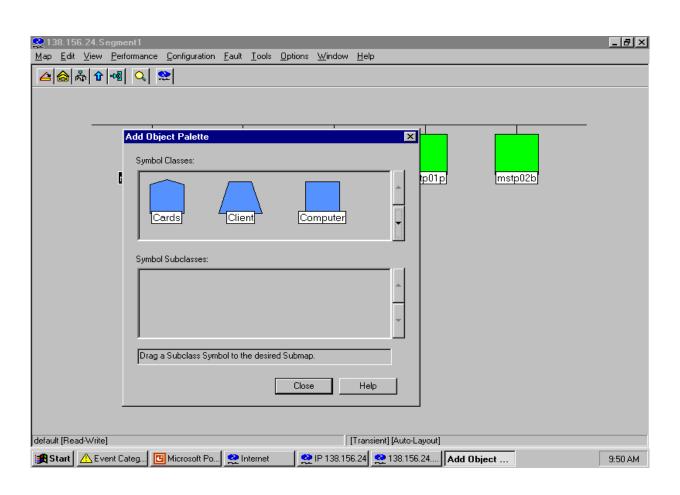
The state of the s





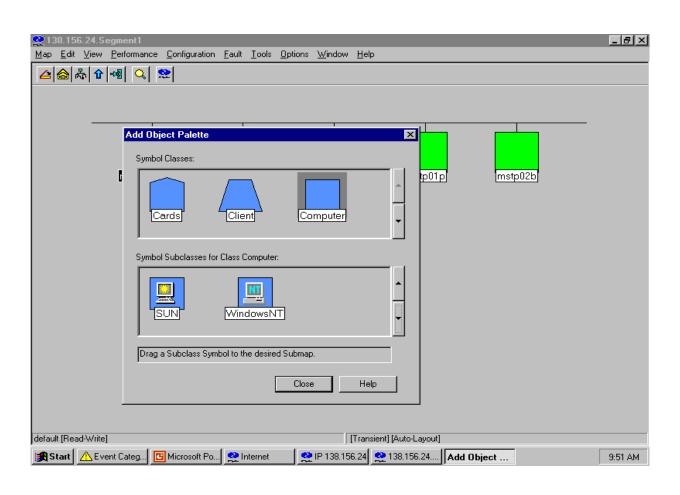






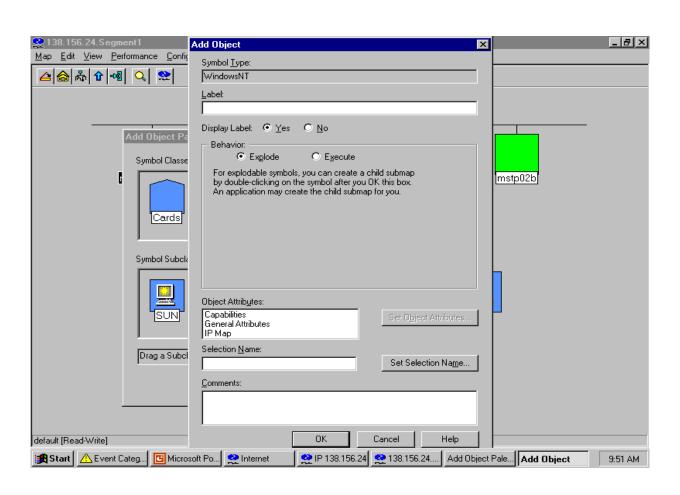
















38.156.24.Segment1	_ I 문 I ×
dd Object	Add Object - Set Attributes
Symbol Type:	Capabilities
WindowsNT	Name Value
Label:	isHTTPSupported [ReadOnly] False
StuberJA	isHTTPManaged [ReadOnly] False
Stubeloa	vendor [ReadOnly] Unset isLocation [ReadOnly] False
Display Label: 💿 Yes 🔘 No	isNetwork (ReadOnly) False
Behavior:	isInternet [ReadOnly] False
	isSegment [ReadOnly] False
	isBusSegment [ReadOnly] False
For explodable symbols, you can create a child submap	isStarSegment [ReadOnly] False
by double-clicking on the symbol after you OK this box.	isTokenRingSegment [ReadOnly] False isFDDIRingSegment [ReadOnly] False
An application may create the child submap for you.	isFDDIRingSegment [ReadOnly] False isSerialSegment [ReadOnly] False
	isNode [ReadOnly] Faise
	isMcClusterMember [ReadOnly] False
	isDevice [ReadOnly] False
	isCollectionStationNode [ReadOnly] False
	isComputer [ReadOnly] True
	OVW isMetaConn [ReadOnly] False
	isConnector [ReadOnly] False
Object Attrib <u>u</u> tes:	Messages:
Capabilities Set Object Attributes	Values for these attributes are not verified. If you want to save a modified
General Attributes Set Object Attributes	 value, press OK; otherwise press Cancel. Changes take effect when you OK the Object Description.
IP Мар	trie object Description.
Selection Name:	
StuberJA Set Selection Name	1 L
JOHN JOHN JOHN JOHN JOHN JOHN JOHN JOHN	
Comments:	OK Verify Cancel Help
	_
	[Transient] [Auto-Layout]
e d A s co d Equit to de la constant	s Les roots de la montre de la constantina del constantina del constantina de la constantina de la constantina del constantina del constantina de la constantina de la constantina del constanti
Start 🔼 Event Cat 🔼 Microsoft ஜ Internet 🔠 🤵 IP 138.19	5 🖊 👥 138.156 📗 Add Object P 📗 Add Object 🔠 📕 Add Objec 📗 9:52 AM





(2)	138.156.24.Segment1		_ [B] ×
	dd Object	×	Add Object - Set Attributes
Г	Symbol <u>I</u> ype:		General Attributes
Н	WindowsNT		Name Value
	Label:		isHTTPSupported False
	StuberJA		isHTTPManaged False *ManagementURL
	Display Label:		vendor Unset isSNMPSupported False
	Behavior:	1	isSNMPProxied False
			SNMPAgent Unset isRDMISupported False
	For explodable symbols, you can create a child submap		
	by double-clicking on the symbol after you OK this box. An application may create the child submap for you.		
			'
	Object Attributes:		Messages:
	Capabilities Set Object Attributes		Values for these attributes are not verified. If you want to save a modified value, press OK; otherwise press Cancel. Changes take effect when you OK.
	IP Map		the Object Description.
	Selection Name:		
	StuberJA Set Selection Name		'
	Comments:		OK Verify Cancel Help
d	,		[Transient] [Auto-Layout]
	Start	•	2 138.156 Add Object P Add Object Add Objec 9:52 AM

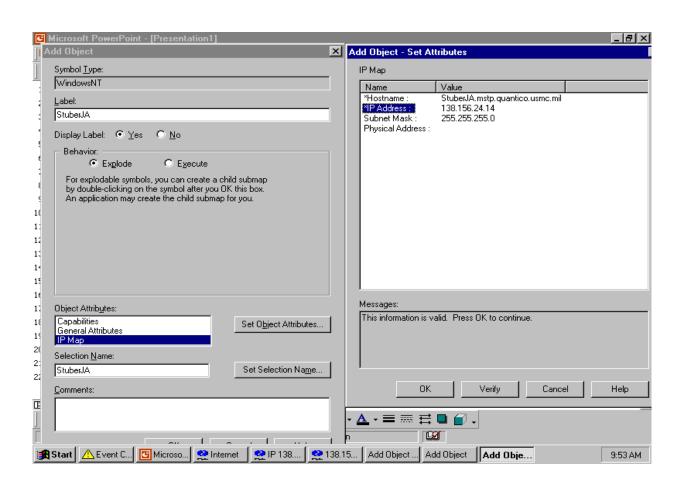




22 138.156	6.24.Segment1					_ B ×
Add Obje	ect	x	Add Object - Set A	ttributes		
Symbol	Symbol <u>T</u> ype:		IP Map			
- Window	wsNT		Name	Value		
<u>L</u> abel:			*Hostname :	100150010		
Stubera	JA		*IP Address : Subnet Mask :	138.156.24.0 255.255.255.0		
Display	Label: O Yes O No		Physical Address :			
⊏ Beha						
Bond						
by do	explodable symbols, you can create a ch ouble-clicking on the symbol after you 0 pplication may create the child submap	K this box.				
Object /	Attrib <u>u</u> tes:		Messages:			
Capabi	ilities al Attributes	Set Object Attributes	Please enter a Hos	tname, IP Address, o	r Physical Address.	
IP Map						
Selection	on <u>N</u> ame:					
Stubera	JA .	Set Selection Name	'			
<u>C</u> ommer	nts:		OK	Verify	Cancel	Help
d '	ov 1	1 1	[Transient] [Auto-Layo	out]		
Start	🗥 Event C 🔼 Microso ஜ Inter		15 Add Object A	dd Object Add C	Obje	9:53 AM

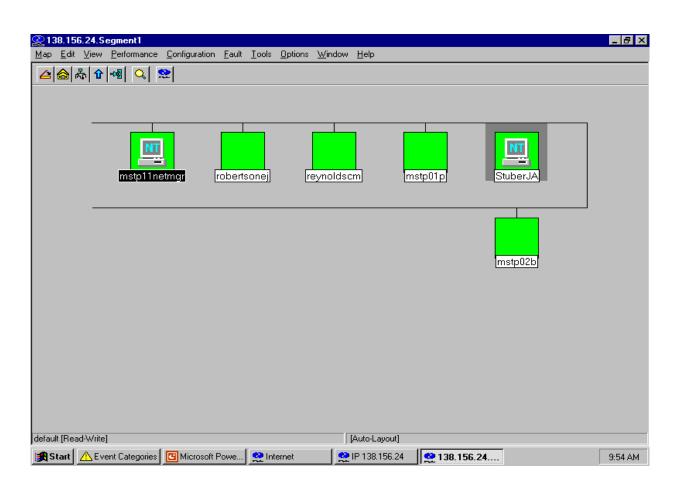












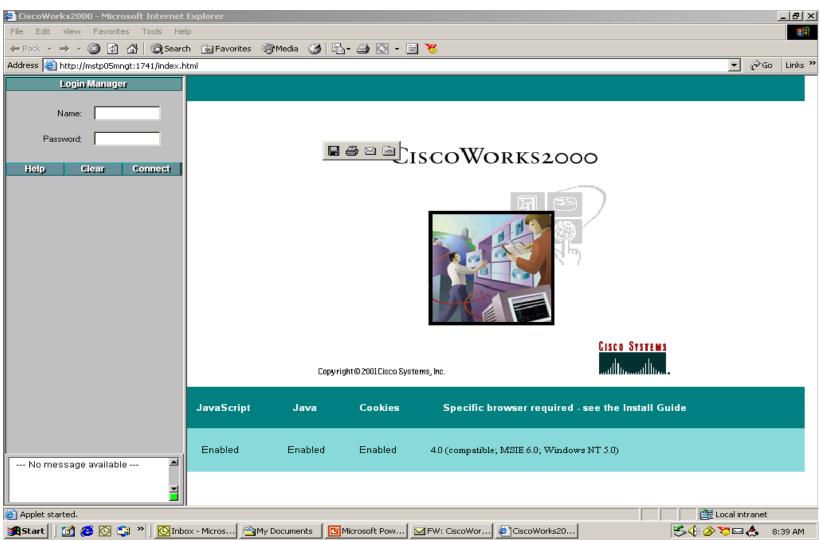


CISCO WORKS 2000

- Is an authorized Marine Corps data Management Tool
- Comes bundled with the TDN Suite
- Acts as a SNMP manager system
- Software image archive

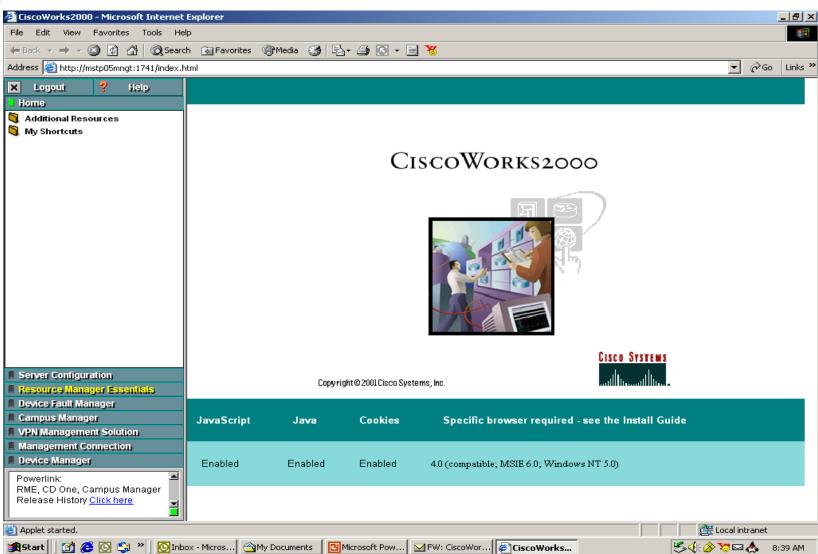






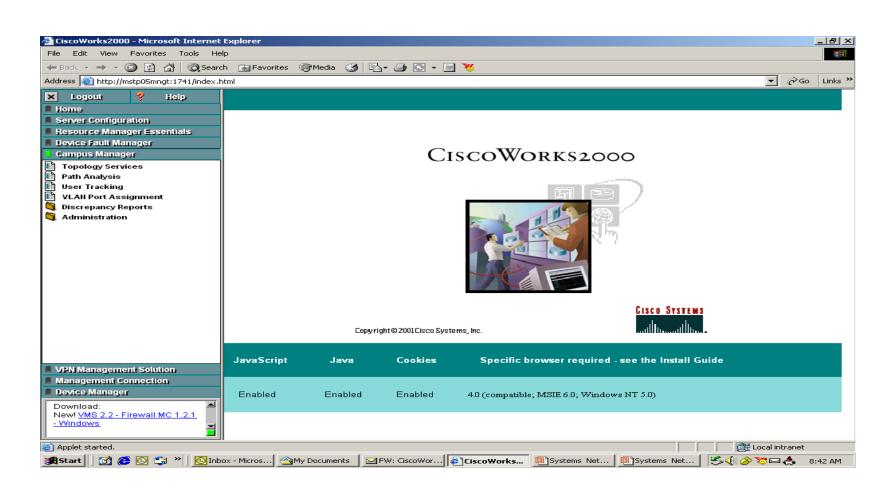












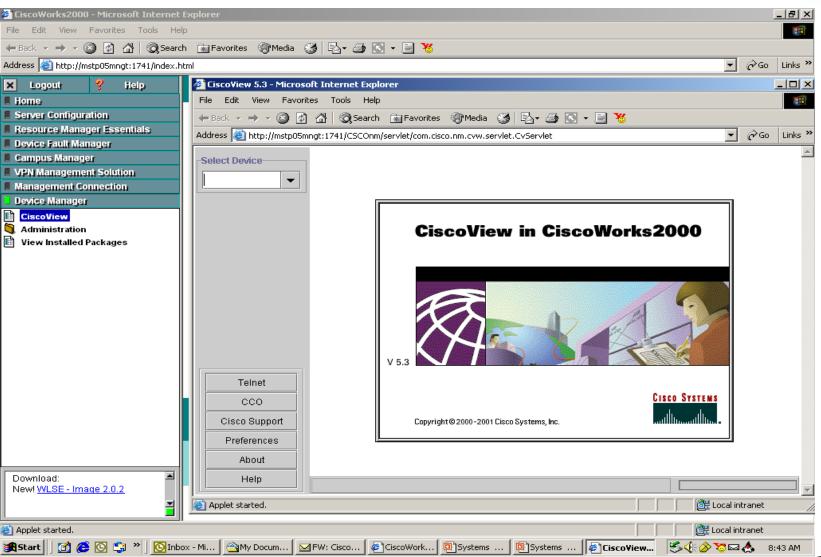




					rnet Explorer					_
	iew Kepon	ts Tools H	eip							
D Dow	nain MSTP		▼	Chaus All Danta						
יוווטע א	am WSTP			Show All Ports						
Port-										
	Matcl	h all of the fol	lowing O Match a	ny of the following						
	Port Name		contains	V						
_ [Port Name		contains							
Г	✓ include n	ulti-access p	onte Cot Do	rto.						
12	include III	iditi-access p	oorts Get Po	its						
Link	Port	ifName	Device Name	Device Address	Port Status	isTrunk	VLAN Name	VLAN Index	Association Type	
		4/3	138.156.29.11	138.156.29.11	Down		default	1		
Z			1139 156 70 6	139 156 20 6	Down		default	1	Native	
		3/10 3/8	138.156.29.6 138.156.29.10	138.156.29.6 138.156.29.10	Down		default default	1	Native	
/		3/8 5/45	138.156.29.10 138.156.29.10 138.156.29.10	138.156.29.10 138.156.29.10 138.156.29.10	Down Down Down		default default default	ļ.		
		3/8	138.156.29.10	138.156.29.10	Down		default	1	Native Native	
	MSTP02E	3/8 5/45 5/18	138.156.29.10 138.156.29.10	138.156.29.10 138.156.29.10	Down Down		default default	1	Native Native Native	
,	MSTP02E Cntl Roo	3/8 5/45 5/18 Fa0/6 3/5	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.7 138.156.29.10	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.7 138.156.29.10	Down Down Down Up Up		default default default default default	1 1 1 1 1 1	Native Native Native Native Native Native Native	
,		3/8 5/45 5/18 Fa0/6 3/5 6/15	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.7 138.156.29.10 138.156.29.10	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.7 138.156.29.10 138.156.29.10	Down Down Up Up Down	N N	default default default default default default	1 1 1 1 1 1	Native Native Native Native Native Native Native Native Native	
3		3/8 5/45 5/18 Fa0/6 3/5 6/15 5/19	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.7 138.156.29.10 138.156.29.10	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.7 138.156.29.10 138.156.29.10	Down Down Up Up Down Down Down		default default default default default default default	1 1 1 1 1 1	Native	
ž		3/8 5/45 5/18 Fa0/6 3/5 6/15 5/19 4/1	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.7 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.7 138.156.29.10 138.156.29.10 138.156.29.10	Down Down Up Down Down Oown Oown Down Down Down		default default default default default default default default	1 1 1 1 1 1	Native	
,		3/8 5/45 5/18 Fa0/6 3/5 6/15 5/19 4/1 5/37	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.11	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.7 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.11	Down Down Up Up Down Down Down Down Down Down Down		default	1 1 1 1 1 1	Native	
,		3/8 5/45 5/18 Fa0/6 3/5 6/15 5/19 4/1 5/37	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.7 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.10 138.156.29.10	Down Down Up Up Down Down Down Down Down Down Down Down		default	1 1 1 1 1 1	Native	
,		3/8 5/45 5/18 Fa0/6 3/5 6/15 5/19 4/1 5/37 4/2 6/39	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.7 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10	Down Down Up Up Down Down Down Down Down Down Down Down		default	1 1 1 1 1 1 1 1 1 1 1	Native	
\$		3/8 5/45 5/18 Fa0/6 3/5 6/15 5/19 4/1 5/37	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.7 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.10 138.156.29.10	Down Down Up Up Down Down Down Down Down Down Down Down		default	1 1 1 1 1 1 1 1 1 1 1 1	Native	
¥ 		3/8 5/45 5/18 Fa0/6 3/5 6/15 5/19 4/1 5/37 4/2 6/39 3/19	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10	Down Down Up Up Down Down Down Down Down Down Down Down		default	1 1 1 1 1 1 1 1 1 1 1 1 1	Native	
3	Cntl Roo	3/8 5/45 5/18 Fa0/6 3/5 6/15 5/19 4/1 5/37 4/2 6/39 3/19	138.156.29.10 138.156.29.10 138.156.29.17 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10	Down Down Up Up Down Down Down Down Down Down Down Down		default	1 1 1 1 1 1 1 1 1 1 1 1 1	Native	
}	Cntl Roo	3/8 5/45 5/18 Fa0/6 3/5 6/15 5/19 4/1 5/37 4/2 6/39 3/19	138.156.29.10 138.156.29.10 138.156.29.17 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10	Down Down Up Up Down Down Down Down Down Down Down Down		default	1 1 1 1 1 1 1 1 1 1 1 1 1	Native	
7	Cntl Roo	3/8 5/45 5/18 Fa0/6 3/5 6/15 5/19 4/1 5/37 4/2 6/39 3/19	138.156.29.10 138.156.29.10 138.156.29.17 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10	138.156.29.10 138.156.29.10 138.156.29.12 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.11 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10 138.156.29.10	Down Down Up Up Down Down Down Down Down Down Down Down		default	1 1 1 1 1 1 1 1 1 1 1 1 1	Native	

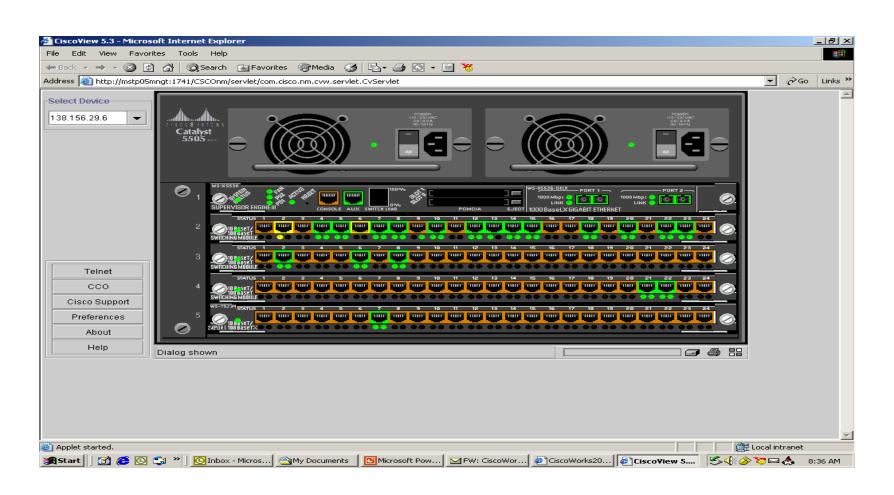






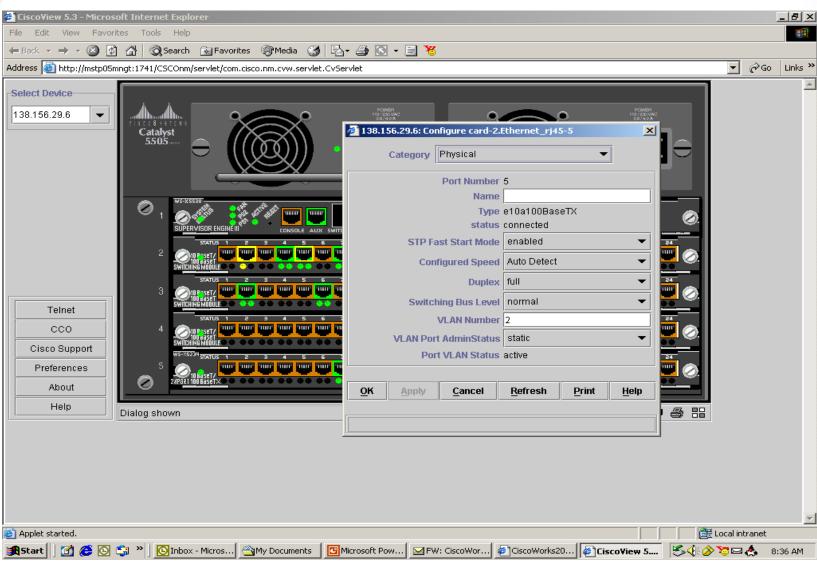












I WASHINGTON



- WHATS UP GOLD
 - Whats Up Gold Evaluation Software (11 MB)
 - Runs on Windows 98/Me/NT/2000/XP platforms.
 - Software will cease to function 30 days after installation.



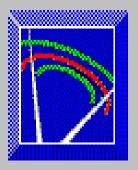
- WHATS UP GOLD (cont.)
 - Requires Authorization
 - For a comprehensive look at the features and operations of WhatsUp Gold, download the WhatsUp Gold User's Guide (requires Adobe Acrobat Reader 3.0).

DATA NETWORK MANAGEMENT





- Ease of use.
- Auto-discovery
- User Friendly











What's Up Gold

Easy-to-use tool for monitoring TCP/IP, NetBIOS, and IPX networks.

Initiates both visible and audible alarms Provides a web interface so you can view network status from a web browser on any computer on the Internet.

Monitoring your network without any special training.





- Mapping the Network
 - DICOVER AND MAP
 - SCANNING FOR SNMP
 - SCAN IP ADDRESSES
 - LOAD HOSTS FILE
 - SCAN NETWORK NEIGHBORHOOD
 - DRAW IT





- Mapping the Network
 - DICOVER AND MAP
 - SCANNING FOR SNMP
 - SCAN IP ADDRESSES
 - LOAD HOSTS FILE
 - SCAN NETWORK NEIGHBORHOOD
 - DRAW IT





Monitoring the Network

Continuously monitor the network Initiate a single "poll" of the network- One poll of the network involves checking each monitored device in the network map. Each "check" consists of Whats Up Gold sending a poll request to a device and tracking the response.





Monitoring the Network (cont.)

Determine how the device is monitored and define- what action to take if the device does not respond to a check.

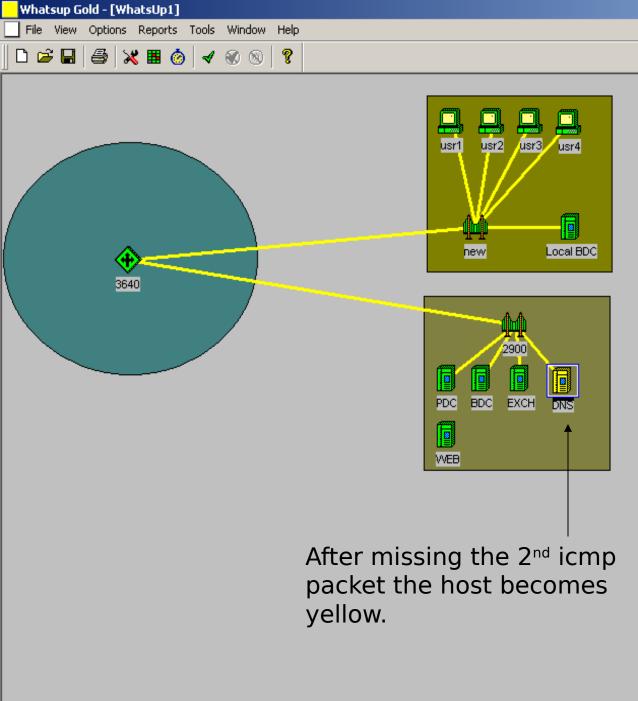
Determine which services are running on that device (such as HTTP, SMTP,POP3, DNS) What services to monitor- Whats Up Gold monitors a service by communicating with the default port that the service runs on.

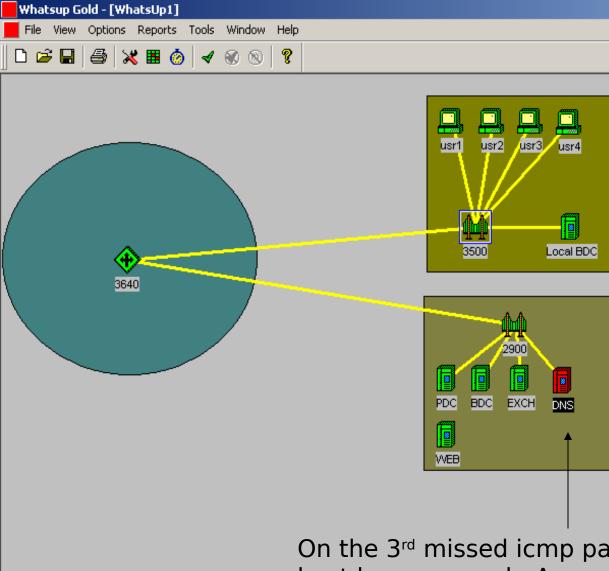




Adding a Host to What's up Gold

new	×
General SNMP M	fonitor Services Alerts Notes Menu
Display Name:	3640
Host Name:	3640_MSTP
Address:	192.168.20.33
Туре:	Router
Info Line1:	
Info Line2:	
Polling Method—	NetBIOS © TCP/IP © IPX
ОК	Cancel Apply Help

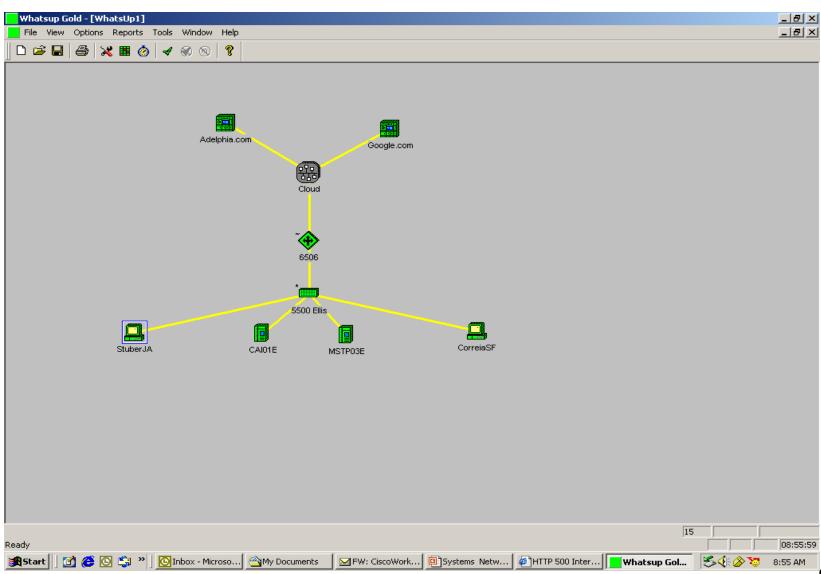




On the 3rd missed icmp packet the host becomes red. A sound notification sounds an alarm when a device or service goes down.







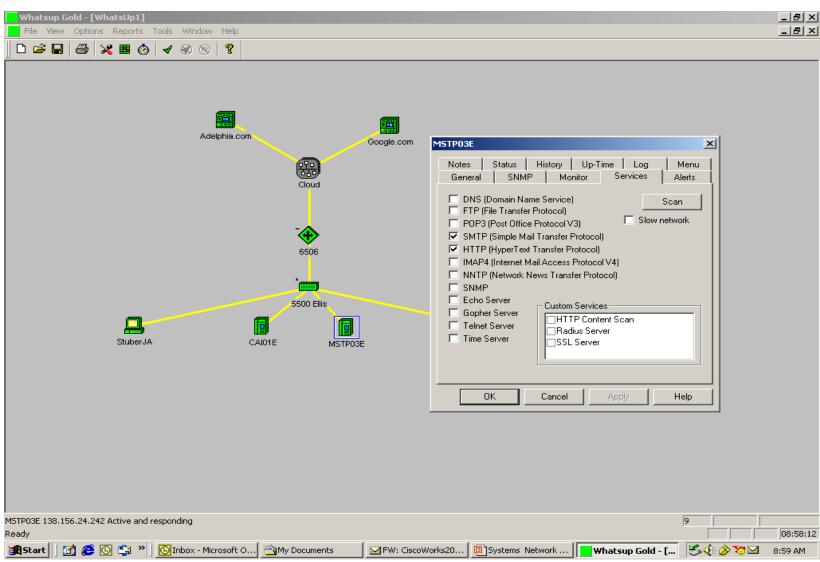




## WUG Status							_ B ×
5500 Ellis	SNMP						
StuberJA	SNMP HTTP						
CorreiaSF	HTTP						
Google.com	HTTP						
Adelphia.com	HTTP						
6506	HTTP						
Cloud							
CAI01E	HTTP						
MSTP03E	SMTP	HTTP					
🅦 Start 📗 🚰 🍪 🔯 岑 📗 💽 Inbox - Micr 省 My Docu	me 🔀 F	W: Cisco	Systems N	€ HTTP 500 I	₩ WUG Status	5400	8:56 AM



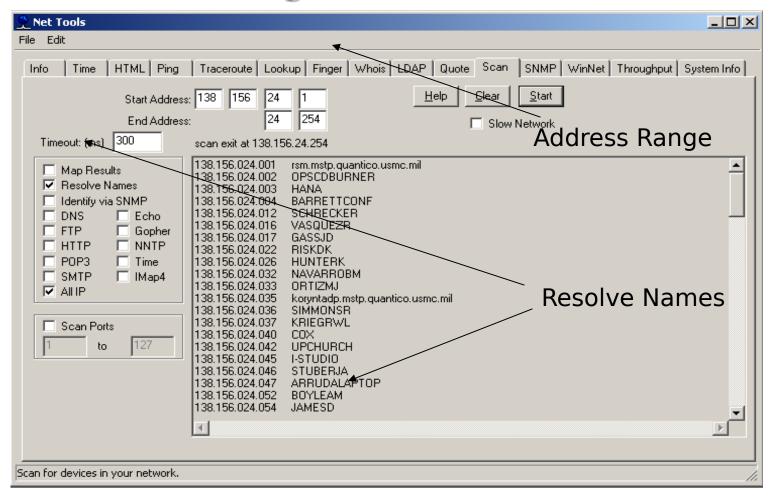








Using Net Tools







Two types of information Device Status

Statistics





REPORTS

<u>Performance Graphs</u>. Show devices by best or worst performance based on aggregated polling statistics.

Event Reports. Show device up and down events, service up and down events, and WhatsUp Gold events such as map open and close.

<u>Statistics Reports</u>. Show the accumulated polling statistics by device.





Daily Performance Data

Map name: MSTP

Period: June 23, 2002 to June 29, 2002 Report Date: Wed Jul 03 09:08:18 2002

MSTP Web Server:

	AvgRTT	AvgMaxR	□ StdDev	iation A	vgMinRTT	%Missed
2002/06/23	0	15	7.68	0	0.17	24
2002/06/24	. 1	29	10.52	0	0.29	24
2002/06/25	2	34	11.28	0	0.04	24
2002/06/26	2	36	11.63	0	0.08	24
2002/06/27	1	23	9.41	0	0.17	24
2002/06/28	1	32	11.05	0	0.21	24
2002/06/29	1	23	9.47	0	0.00	24
7 Day Avg	1	27	8.79	0	0.14	7





MSTP Downtime Summary

Period: June 23, 2002 to June 29, 2002 Report Date: Wed Jul 03 09:05:18 2002

Device		Downtime (days:hours:minutes)
MSTP Web Server Device Downtime	21	21
MSTP-MDS Device Downtime	1	02
MSTP06 Device Downtime	1	01







QUESTIONS?